

WO 2004/054807
PCT/DE2003/003941

6/PRTS

001538854
JC17 Rec'd PCT/PTO 14 JUN 2005

Specification

W. H. H. H.
A. W. H. H.

Printing Blanket Assembly for a Blanket Cylinder and Method
for Producing the Same

The invention relates to printing blanket units of a printing blanket cylinder of a printing press, as well as to methods for producing it in accordance with the preambles of claims 1, 2, 25, 40, 44 or 45.

Printing blanket units are fastened on the printing blanket cylinder of printing presses and are used in offset printing for transferring the print image from the forme cylinder to the web of material to be imprinted. For providing the required mechanical strength for the printing blanket unit, a support plate made, for example, of sheet steel or sheet aluminum, is employed. A printing blanket which can be designed in the manner of a rubber blanket, for example, is fastened on the outside of the support plate. Folded legs, free of the printing blanket, are provided at the leading end and/or the trailing end of the support plate for fixing the printing blanket unit in place on the printing blanket cylinder. These legs can then be inserted, for example, into a slit provided in the printing blanket cylinder and fixed in place there.

A problem in connection with known printing blanket units is that the printing blanket does not enclose the support plate seamlessly, and that instead a gap remains between the leading and the trailing ends of the printing blanket. No printing ink can be transferred in the gap to the web of material to be imprinted. Furthermore, the print image is of reduced quality at the edges of the printing blanket in the direction toward the gap. Therefore several

solutions are known in the prior art, by means of which the disadvantages caused by the gap between the ends of the printing blanket can be avoided.

A printing blanket unit is known from DE 195 47 917 A1, wherein the two ends of the printing blanket overlap each other with a positive connection in order to reduce the gap between the ends of the printing blanket.

A printing blanket unit is known from DE 195 21 645 A1, wherein a slide is arranged between the two legs of the support plate. In this case the outward pointing end of the slide is connected with a filler element, so that the gap between the ends of the printing blanket is closed by the filler element.

A printing blanket unit is known from DE 195 43 584 C1, wherein the printing blanket is put together from a plurality of layers. Here, the top layer covers the front areas of the layers underneath it and in this way forms a protrusion, by means of which the gap at the ends is reduced.

USP 5,749,298 discloses a printing blanket unit with a support plate, whose ends are folded. The printing blanket arranged on the support plate is sealed at the front.

USP 4,635,550 discloses a printing blanket unit with a printing blanket arranged on a support plate. A support element is arranged in the groove in the support plate, which supports the projecting end of the printing blanket.

USP 2,525,003 shows a device for producing a printing blanket unit.

USP 4,643,093 discloses a printing plate with a reinforced end and an associated device.

The object of the invention is based on producing printing blanket units of a printing blanket cylinder of a

Claims

1. A printing blanket unit for a printing blanket cylinder of a printing press, having a dimensionally stable support plate (02, 18, 42) and a printing blanket (03, 19, 43) fastened on the exterior of the support plate (02, 18, 42), wherein filler material (13, 14, 29, 51, 52) is arranged on at least one end of the printing blanket (03, 19, 43), wherein the filler material (13, 14, 29, 51, 52) is arranged at least as far as the exterior of the printing blanket (03, 19, 43), characterized in that the filler material (51, 52) extends in the longitudinal direction of the printing blanket (43) on an outside of the printing blanket (43).

2. A printing blanket unit for a printing blanket cylinder of a printing press, having a dimensionally stable support plate (02, 18, 42) and a printing blanket (03, 19, 43) fastened on the exterior of the support plate (02, 18, 42), wherein the filler material (13, 14, 29, 51, 52) is arranged on at least one end (11, 12, 31, 32, 61, 62) of the printing blanket (03, 19, 43), wherein the support plate (02, 18, 42) has two folded legs (04, 06, 21, 22, 44, 46), wherein the filler material (13, 14, 29, 51, 52) is arranged at least partially on a fold (08, 09, 27, 28, 48, 49) of the folded leg (04, 06, 21, 22, 44, 46) of the support plate (02, 18, 42), characterized in that both ends (61, 62) of the printing blanket (43) have their own filler material (51, 52) arranged on them.

3. The printing blanket unit in accordance with claim

2, characterized in that the filler material (51, 52) extends in the longitudinal direction of the printing blanket (43) on an outside of the printing blanket (43).

4. The printing blanket unit in accordance with claim 1 or 2, characterized in that a length (L51, L52) of the filler material (51, 42) in the circumferential direction is greater than 0.1 mm.

5. The printing blanket unit in accordance with claim 1 or 2, characterized in that a length (L51, L52) of the filler material (51, 42) in the circumferential direction is greater than 0.4 mm.

6. The printing blanket unit in accordance with claim 1 or 2, characterized in that a length (L51, L52) of the filler material (51, 42) in the circumferential direction is less than 2 mm.

7. The printing blanket unit in accordance with claim 1 or 2, characterized in that a length (L51, L52) of the filler material (51, 42) in the circumferential direction is less than 5 mm.

8. The printing blanket unit in accordance with claim 1 or 2, characterized in that a thickness of the filler material (51, 52) is greater than the thickness of the printing blanket (43).

9. The printing blanket unit in accordance with claim 1, characterized in that the support plate (42) has at least

one folded leg (44, 46).

10. The printing blanket unit in accordance with claim 2 or 9, characterized in that the folded leg (46) encloses an acute opening angle ($\alpha 06$) together with the adjoining support plate (42).

11. The printing blanket unit in accordance with claim 2 or 9, characterized in that the folded leg (46) is arranged on the leading end of the printing blanket unit.

12. The printing blanket unit in accordance with claim 9, characterized in that the support plate (42) has two folded legs (44, 46).

13. The printing blanket unit in accordance with claim 2 or 12, characterized in that the folded leg (44) at the trailing end forms an opening angle ($\alpha 04$) of between 45 and 150 degrees with the adjoining support plate (42).

14. The printing blanket unit in accordance with claim 2 or 12, characterized in that the folded leg (44) at the trailing end forms an opening angle ($\alpha 04$) of between 80 and 100 degrees with the adjoining support plate (42).

15. The printing blanket unit in accordance with claim 2 or 12, characterized in that the folded leg (44) at the trailing end forms an opening angle ($\alpha 04$) of between 120 and 150 degrees with the adjoining support plate (42).

16. The printing blanket unit in accordance with claim

9 or 12, characterized in that the filler material (51, 52) is arranged at least partially on a fold (48, 49) of the folded leg (44, 46) of the support plate (42).

17. The printing blanket unit in accordance with claim 2, 9 or 12, characterized in that the filler material (51, 52) protrudes past the end of the support plate (42) in the longitudinal direction.

18. The printing blanket unit in accordance with claim 2 or 16, characterized in that the filler material (51, 52) is arranged at least partially past the fold (48, 49) on the folded leg (44, 46) of the support plate (42).

19. The printing blanket unit in accordance with claim 1 or 2, characterized in that the filler material (51, 52) extends at a virtual extension (V43) of the exterior of the printing blanket (43) in the longitudinal direction of the printing blanket (43).

20. The printing blanket unit in accordance with claim 1 or 2, characterized in that in the radial direction the filler material (51, 52) protrudes at least partially past the virtual extension (V43) of the exterior of the printing blanket (43).

21. The printing blanket unit in accordance with claim 1, characterized in that both ends (61, 62) of the printing blanket (43) have their own filler material (51, 52) arranged on them.

22. The printing blanket unit in accordance with claim 2 or 16, characterized in that the filler material (51, 52) is placed around the folds (48, 49).

23. The printing blanket unit in accordance with claim 1, 2 or 21, characterized in that, in the state wherein it is mounted on the printing blanket cylinder, the filler material (51, 52) arranged on one end (61, 62) of the printing blanket (43) is not connected with the other end (61, 62) of the printing blanket (43) or with the other filler material (51, 52) arranged on the other end (61, 62) of the printing blanket (43).

24. The printing blanket unit in accordance with claim 23, characterized in that, in the state wherein it is mounted on the printing blanket cylinder, the filler material (51, 52) arranged on one end (61, 62) of the printing blanket (43) does not touch the other end (61, 62) of the printing blanket (43) or the other filler material (51, 52) arranged on the other end (61, 62) of the printing blanket (43).

25. A method for producing a printing blanket unit for a printing blanket cylinder of a printing press, having a dimensionally stable support plate (02, 18, 42) and a printing blanket (03, 19, 43) fastened on the exterior of the support plate (02, 18, 42), wherein filler material (13, 14, 29, 51, 52) is arranged on at least one end of the printing blanket (03, 19, 43), characterized in that at least the support plate (42) is arranged on a device (41) for processing outside the printing press, and the filler material (51, 52) is introduced into this processing device

(41).

26. The method in accordance with claim 25, characterized in that the filler material (51, 52) is introduced into a mold (54, 56) of the processing device (41).

27. The method in accordance with claim 25, characterized in that the filler material (51, 52) is introduced in the flowable state.

28. The method in accordance with claim 25, characterized in that the filler material (51, 52) is deformed in the course of being introduced.

29. The method in accordance with claim 25, characterized in that the printing blanket unit is vulcanized following the introduction of the filler material (51, 52).

30. The method in accordance with claim 25, characterized in that the filler material (51, 52) is introduced following the folding of at least one leg (44, 46) of the support plate (42).

31. The method in accordance with claim 25, characterized in that separate filler materials (51, 52) are introduced at both ends of the printing blanket unit.

32. The method in accordance with claim 30 or 31, characterized in that the filler material (51, 52) is introduced at both ends of the printing blanket unit

following the folding of the respective leg (44, 46) of the support plate (42).

33. The method in accordance with claim 32, characterized in that both legs (44, 46) of the printing blanket unit are folded prior to introducing the filler material (51, 52).

34. The method in accordance with claim 25, characterized in that the printing blanket (43) is arranged on the support plate (42) prior to introducing the filler material (51, 52).

35. The method in accordance with claim 25, characterized in that the outside of the filler material (51, 52) is processed after the filler material (51, 52) has been introduced.

36. The method in accordance with claim 35, characterized in that the filler material (51, 52) is processed in accordance with the required measurements.

37. The method in accordance with claim 26, characterized in that after the filler material (51, 52) has been introduced, the mold (54, 56) is opened.

38. The method in accordance with claim 37, characterized in that at least one surface which delimits the mold (54, 56) is moved in the longitudinal direction of the support plate (42).

39. The method in accordance with claim 37, characterized in that a surface at each end of the printing blanket unit, which respectively delimits the mold (54, 56), is moved in the longitudinal direction of the support plate (42).

40. A method for producing a printing blanket unit for a printing blanket cylinder of a printing press, having a dimensionally stable support plate (02, 18, 42) and a printing blanket (03, 19, 43) fastened on the exterior of the support plate (02, 18, 42), wherein filler material (13, 14, 29, 51, 52) is arranged on at least one end of the printing blanket (03, 19, 43), characterized in that filler material (51, 52) is applied to the support plate (42), which already has at least one folded end and to which a printing blanket (43) has already been applied, in the area of the fold (48, 49) of the support plate (42) and is connected with a front face of the end (61, 62) of the printing blanket (43).

41. The method in accordance with claim 40, characterized in that both ends (61, 62) of the printing blanket (43) have their own filler material (51, 52) arranged on them.

42. The method in accordance with claim 40, characterized in that in the state wherein it is mounted on the printing blanket cylinder, the filler material (51, 52) arranged on one end (61, 62) of the printing blanket (43) is not connected with the other end (61, 62) of the printing blanket (43) or with the other filler material (51, 52) arranged on the other end (61, 62) of the printing blanket

(43).

43. The method in accordance with claim 40, characterized in that in the state wherein it is mounted on the printing blanket cylinder, the filler material (51, 52) arranged on one end (61, 62) of the printing blanket (43) does not touch the other end (61, 62) of the printing blanket (43) or the other filler material (51, 52) arranged on the other end (61, 62) of the printing blanket (43).

44. A printing blanket unit for a printing blanket cylinder of a printing press, having a dimensionally stable support plate (02, 18, 42) and a printing blanket (03, 19, 43) fastened on the exterior of the support plate (02, 18, 42), wherein filler material (13, 14, 29, 51, 52) is arranged on at least one end of the printing blanket (03, 19, 43), characterized in that the printing blanket unit has at least one end of a greater thickness than the area located between the two ends, that in the area of this end the exterior of the printing blanket unit protrudes in the radial direction at least partially past the virtual extension (V43) of the exterior of the printing blanket (43).

45. A printing blanket unit for a printing blanket cylinder of a printing press, having a dimensionally stable support plate (02, 18, 42) and a printing blanket (03, 19, 43) fastened on the exterior of the support plate (02, 18, 42), wherein filler material (13, 14, 29, 51, 52) is arranged on at least one end of the printing blanket (03, 19, 43), characterized in that in the state wherein it is applied to the printing blanket cylinder, a radius (R11, R12) of the

cylinder in relation to the exterior of the printing blanket (03), or in relation to the outside of the filler material (13, 14), is greater, at least in the area of an end of the printing blanket unit, than a radius (R03) of the cylinder in relation to the exterior of the printing blanket in the area between the two ends.

46. The printing blanket unit in accordance with claim 44 or 45, characterized in that a filler material (51, 52) has been arranged on the support plate (42) for thickening the end.

47. The printing blanket unit in accordance with claim 44 or 45, characterized in that the thickening of the end of the printing blanket unit is less than 10 mm in the circumferential direction.

48. The printing blanket unit in accordance with claim 1, 2, 44 or 45, or the method in accordance with claim 25, characterized in that the support plate (42) is made of metal.

49. The printing blanket unit in accordance with claim 1, 2, 44 or 45, or the method in accordance with claim 25, characterized in that the printing blanket (43) is multi-layered.

50. The printing blanket unit in accordance with claim 1, 2, 44 or 45, or the method in accordance with claim 25, characterized in that the filler material (51, 52) is of one piece.

51. The printing blanket unit in accordance with claim 1, 2, 44 or 45, or the method in accordance with claim 25, characterized in that the materials of the filler material (51, 52) and the printing blanket (43) are different.

52. The printing blanket unit in accordance with claim 1, 2, 44 or 45, or the method in accordance with claim 25, characterized in that materials of the filler material (51, 52) and the printing blanket (43) are identical.

53. The printing blanket unit in accordance with claim 1, 2, 44 or 45, or the method in accordance with claim 25, characterized in that the filler material (51, 52) is arranged on the printing blanket cylinder prior to mounting the printing blanket unit.

54. The printing blanket unit in accordance with claim 45, characterized in that the printing blanket unit has the increased radius (R11, R12) in the circumferential direction of less than 10 mm.

55. The printing blanket unit in accordance with claim 54, characterized in that the printing blanket unit has the increased radius (R11, R12) in the circumferential direction of less than 5 mm.

56. The printing blanket unit in accordance with claim 1, 2, 44 or 45, or the method in accordance with claim 25, characterized in that the printing blanket cylinder is in contact with a forme cylinder.

57. The printing blanket unit in accordance with claim 56, characterized in that the forme cylinder has at least one printing plate.

58. The printing blanket unit in accordance with claim 56, characterized in that the forme cylinder has at least one groove, i.e. an interruption at the circumference.

59. The printing blanket unit in accordance with claim 1, 2, 44 or 45, or the method in accordance with claim 25, characterized in that the filler material (13, 14, 29, 51, 52) cooperates with a printing plate so that they mutually support each other.

60. The printing blanket unit in accordance with claim 2, characterized in that the printing blanket (03, 43) is arranged on top of the filler material (13, 14, 51, 52).